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AZERBAIJAN COMPETITIVENESS AND TRADE (ACT) PROJECT

Fourth Mission Report on Dairy Development

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Acronyms

ACT	- Azerbaijan Competitiveness and Trade Project
AI	- Artificial Insemination
AZN	- New Azeri Manat
AIM	- Agro Information Centre
BDS	- Business Development Service
CF	- Crude Fiber
CP	- Crude Protein
DMI	- Dry Matter Intake
EE	- Ether Extract
FAO	- Food and Agricultural Organization of the United Nations
GDP	- Gross Domestic Product
GoA	- Government of Azerbaijan
GiZ	- German International Cooperation
JAC	- Janub Agribusiness Centre
LN	- Liquid Nitrogen
LRI	- Livestock Research Institute
MCC	- Milk Collection Centre
MCP	- Milk Collection Point
ME	- Metabolizable Energy
MoA	- Ministry of Agriculture
MT	- Metric Ton
NFE	- Nitrogen Free Extract
NGO	- Non-Governmental Organization
SSC	- State Statistical Committee
SVD	- State Veterinary Department
UMID	- Humanitarian and Social Support Centre
USAID	- United States Agency for International Development
USD	- United States Dollar
VAT	- Value Added Tax
WB	- World Bank

1 Introduction

The fourth mission on dairy development, which took place between 9 February and 17 March 2012, focused on the design and preparation of 10 different workshops on dairy farm management and further capacity building of extension agents and service providers.

During the **first mission** in March 2011 the dairy sector was studied and recommendations for further development were formulated, while during the **second mission** a first meeting with most of the leading dairy companies was organized with the aim to see if there was a shared interest in discussing common problems that need to be addressed: poor raw milk quality and very small quantities per farm, unfair competition from unlicensed processing units and open sales, lack of investment support and insufficient involvement in dairy policy formulations. A start was also made with capacity building of extension staff and service providers: two courses were conducted on Feeding Management (Agjabedi and Lankaran). The positive response from the participants indicated that they were eager to receive new information. During this mission training material on dairy production that was developed by AIM and JAC was reviewed and it was clear that these papers needed to be re-written if they were to be of any practical value.

The **third mission** built further on the previous activities: the planned roundtable meeting between milk processing companies and government representatives took place and a training course on producing plain language guides was conducted for selected service providers. New leaflets, written as part of the contract for the first project year, were reviewed on technical merits and presentation.

The **fourth mission** focused on the preparation and introduction of a complete training course on dairy production for small farmers. New plain language guides were developed, trainer manuals were prepared and workshops were conducted to test the material and to train the trainers. In addition visits were paid to government organizations and service providers to monitor developments in the dairy sector. As it became clear that the application for grants to stimulate farm development (demonstration farms) was too complex in relation to the available budgets, it was decided to limit this program to the provision of demonstration equipment and to conduct field trials on fodder production.



The project team had changed since the previous mission: Elvin Agayev replaced Elnur Sofiyev and in the regions two new local experts were hired to work in dairy

development (Shirzaid and Nazir). In addition a full-time extension specialist had joined the team of foreign experts. Since no contracts had yet been signed with the service providers, capacity building had to focus on the project staff. However, in both regions the AIM and JAC staff was very cooperative and during the last week of workshops JAC fully participated. Just before the end of this mission a new service provider was selected for the central region.

Little time was left to work on the development of artificial insemination (AI) services or to cooperate with the milk processing industry. This does not mean that both areas can or should be neglected. The AI services are essential if Azerbaijan is to develop its dairy sector and the common problems on raw milk supply and quality control are still high on the agenda of each dairy company. The question remains if the industry is willing to work together on the issues that affect all of them or if they prefer to deal with these issues on an individual basis. Even though the USAID/ACT project will focus on the training of farmers, efforts should continue to improve the organizational structures for AI services and to involve the dairy industry.

The next pages provide a description of the activities that were carried out during the fourth mission and recommendations for further project implementation. The need for training-of-trainers remains fully valid and should be continued.

2 Capacity Building

2.1 Review of Extension Material

During the previous mission extension material translations of handouts produced by JAC and AIM under the USAID/ACT contract were submitted for review. Both organizations had been quite active, resulting in a substantial number of leaflets (see Third Mission Report for details). The conclusions of the review showed that:

- Technical information not (always) correct or clear
- Too much information, without proper logic or priorities
- Not adapted to the target group (irrelevant information)
- Presentation of information and design below standard

The course on producing plain language guides (printed media) was certainly justified and it was agreed that no leaflets were to be printed and distributed without being thoroughly reviewed and approved by USAID/ACT. It was also clear that in addition further technical training on dairy production was needed, as the knowledge of many of the advisors is still based on outdated Soviet-time information. If farmers are to benefit from the USAID/ACT support, the BDS-staff has to be able to provide relevant and technically sound advice.

It was also concluded that one course on producing plain language guides is not enough to give the service providers sufficient practice and skills to continue without further support. The limited writing techniques in combination with the lack of modern technical know-how makes it difficult for the service providers to meet the required standards.

2.2 Development of New Training Materials

In view of the above conclusions it was decided that a complete new set of plain language guides would be prepared by the project, to be used by all service providers involved in dairy production. This would not only guarantee that the desired quality could be achieved, but would also prevent duplication of efforts as several service providers were producing similar leaflets.

The following plain language guides were completed during the present mission:

- Feeding Management Part 1
- Feeding Management Part 2
- Feeding Management Part 3
- Making High Quality Hay
- Calf Rearing
- Housing Management
- Successful Artificial Insemination
- Animal Health Care
- Producing High Quality Milk
- Cow Signals

With each of the guides, written for farmers and aimed at smallholder dairy production systems, a supporting manual was prepared for the trainers with additional information and/or tips for conducting the workshop. Special leaflets were produced on Body Condition Scoring, Manure Evaluation, Mineral Deficiencies, Electrolyte Treatment, Forage Planning and Alfalfa Growing to help the trainers in their development of technical know-how and skills (see Appendices 1 and 2). A power-point presentation on Housing was included as this will help farmers to understand different designs and solutions.

An effort has been made to find the right level and language for both farmers and trainers. The present knowledge is based on tradition, practical experience and information dating back to the former Soviet Union. This means that farmers can see the difference between good and poor quality hay and know how much milk to expect when feeding certain quality hay. However, in most cases the basic knowledge on animal nutrition is missing, and in order to make progress in milk production, this fundamental knowledge will have to be provided.

All training material needs to be translated into Azeri and checked by a local dairy specialist to assure that the contents are clear and understandable. This takes time as the project interpreters are in high demand. At the end of the mission only part of the leaflets and trainer guides were completed.

2.3 Workshops on Dairy Farm Management

The ten guides form the basis of a complete course on dairy production and cover ten workshops of 1-2 hours. The workshops will be given on-farm and combine practical exercises with theoretical information. The groups should not be larger than 8-12 persons otherwise it will be difficult to keep all farmers involved. Besides that, most farms are too small to provide space for larger groups of farmers.

During the mission period workshops were conducted in Agjabedi and Lankaran regions to test the contents of the workshop (does it meet the farmers needs and understanding) and to train-the-trainers. Time was not enough to cover all topics, but provided enough insight to ensure that we were moving in the right direction.



During one of the first workshops there was a perfectly mixed group of farmers: a few that were ahead of their colleagues (both in in nutrition and animal breeding) and a majority that was still struggling with the basics, but clearly interested. Here the advanced farmers played an important role in creating awareness. During another workshop a lively

interaction between trainers and farmers proved to be more difficult to achieve. During the last week of the mission five workshops were conducted on different topics and involved both local experts and the manager/trainer of JAC.

All trainers proved to be very motivated, but are still lacking some of the knowledge needed to cover all topics properly. Their skills are based on Soviet teachings, and since then newer views and technologies have developed. They did not have much opportunity to get access to this information and use it in the field. Besides the technical information, they have also been used to a different form of teaching. The interactive form of training (with questions and discussion) is fairly new to them, but it was clear that they appreciated this approach. On farm training means that we should make use of what is directly available: cattle, feed, housing, equipment, etc. A good balance between practical approach, new information and visual aids has to be found to get the message across. This will differ per topic, as some items are easier to explain or show than others.

The training-of-trainers should continue to ensure that the quality of the workshops reaches the best possible level. During the next months careful monitoring of the workshops will also be necessary to see if adjustment of course contents is necessary.

2.4 Training Needs and Approach

The local trainers suggested weekly meetings with the same group of farmers. This is a good approach as this would keep the farmers involved and allow for questions and feedback on the previous workshops. If one trainer can do an average of four workshops per week, he could cover four villages in 10 weeks (2.5 months) and train 130 – 160 farmers per month. For the remaining project period (18 months) one trainer can thus cover 30-35 villages. In addition he will be able to provide tailor-made advice to individual farmers and have enough time for organization, administration and workshop preparation. A detailed planning of workshops will be made when the contracts with the service providers have been signed and it is clear how many trainers will be available for the programs.

A pre-condition for following the above approach is that all training materials are ready in time. Once the local experts start the training program, they should be able to cover all the topics in a logical sequence.

In both regions (south and central) the milk processing industry is active in milk collection and the best option would be to target those villages that are already supplying milk and have shown an interest in expanding their production. Selection of villages should take place in close consultation with the dairy companies (e.g., Pal Sud in Lankaran and Atena in Agjabedi). Based on available information, there should be more than enough potential villages and farmers for training.

The training of farmers stimulates the development of smallholder dairy farming, especially in those areas where milk is collected.



Training on dairy farm management is not or only to a limited extent related to seasonal activities. This means that the courses can be conducted at any time of the year. This in contrast with horticulture, where certain activities should take place at a specific time of the year and information therefore has to be provided at the right time.

During the first try-outs farmers were asked to come to the office of the local municipality and after an introduction they were invited to go to a farm. A better solution is to go straight to the farm and this is what happened during the final training week. The farms where the workshops take place should preferably belong to leaders of the community and more advanced farmers that are open to new ideas. There will be no need for on-farm investments to conduct the workshops, which does not mean that having some demonstrations farms would not be very helpful to introduce new technologies. The effect of 'Seeing is believing' is still stronger than explaining new concepts.

The trainers will make use of what is available on the farm (cattle, feed and fodder, buildings and barns) to support the practical training. In addition they will need some basic demonstration equipment and materials. A list of recommended items has been attached as Appendix 3 to the report.

We tried to identify potential suppliers of training materials and discovered that the input supply is even worse than expected. There is one shop in Baku that supplies most of the regions. Here we can find milking trolleys, spare parts for these little milking machines, straw cutters, beet/grain grinders, drinking bowls and a few other needs for farmers. Most items were imported from Turkey, some looked as if produced locally. An impressive catalogue showed a complete range of small farming tools and equipment, but most of these were not available nor in demand. Almost nothing on our list was available, which means that even if we succeed in demonstrating the value of certain items, the farmers won't be able to obtain them easily.

Simple tools and equipment for dairy farming, such as strip cups to check the milk, are difficult to find.



A similar experience waited us when we tried to identify the

availability and demand for veterinary medicines. One of the most well-known suppliers in Baku, working with high quality imported drugs, vaccines and feed additives, told us that 99% of their business was related to the poultry industry. The large dairy farms were regular customers for a range of their products, but otherwise demand was very low.

In Lankaran, closer to the farming community, we learned that there was a better supply of drugs, mainly imported from the Netherlands. A wide range of de-worming treatment (e.g. injectable, boluses, pour-on), mineral-vitamin mixes, antibiotics and mastitis treatment was available. As both local experts are veterinarians, they will be able to judge which of these drugs are most effective and can inform the farmers when and how to use them.



3 Development of AI Services

An expansion of AI (artificial insemination) services is needed in those areas where raw milk is collected by the formal dairy plants as this will help to improve the genetic quality of the dairy cows and thus their milk production.

As the effects of AI only become visible after three years or more (pregnancy takes 9 months and then the calf has to be reared for at least 2 years before it can give birth herself and start milk production) it is important to stimulate the use of AI today. In the meantime we can teach the farmers to improve their feeding and management.

The results of the earlier surveys on artificial insemination showed that many farmers are not satisfied with the quality of AI services. It is not always easy to identify the exact cause for repeated inseminations (e.g. skills of the inseminator, semen quality, time of insemination and heat detection) and a combination of factors may play a role. Another constraint in the expansion of AI services is the complete lack of organization. Each inseminator has to obtain liquid nitrogen and semen on an individual basis. This means monthly visits to either Baku or Ganja and sometimes to both cities. This increases the cost of the service and discourages inseminators to be actively involved.

During a meeting with the head of the breeding department at the Ministry of Agriculture, Mr Chingiz Faracov, we learned that the department is aware of the need for more structure and organization, but that funds were not (yet) available to make the necessary investments (e.g. transport, LN storage tanks). It is very regrettable that with the substantial investments already made to establish and operate the AI center in Ganja, the crucial next step – a distribution system – was not made at the same time. The additional investments are relatively small compared to the benefits that can be expected. Operational costs could be recovered from the sales of semen and LN. If the ministry is not capable to organize a distribution system, this might be an opportunity for the BDS to step in and do it as a commercial service. Another alternative would be the involvement of the dairy companies: they too could provide this extra service and thus build stronger relations with their milk suppliers.

The ministry prepared a catalogue with basic information on artificial insemination, presenting all the available sires (pedigree information only, as these bulls have not been progeny tested) and introduced the top ten inseminators in the country. Unfortunately the cost of the catalogue is 15 AZN, which limits its distribution. Most inseminators are not willing to pay this amount.

The total number of inseminations is still increasing. The detailed records on AI services and calves born showed that in 2011 a total of nearly 80.000 inseminations. There is large variation between inseminators, both in number of inseminations as in success rate. Top inseminators reach more than 1000 cows per year (some even 2000), the majority remains below or about 100 cows/year. Calf recording was around 65% of the total inseminations. This would be a good result if we talked about 1st inseminations only, but as

a total there is room for improvement. Reasons could also be that not all calves are recorded or that farmers switch to natural service if the first insemination is not successful.

The USAID/ACT project prepared to organize refresher courses for inseminators and to provide information to farmers on heat detection and reproductive management, but this has been moved down in priority in favor of other activities that are more pressing.

The proposed course program is ready (see 2nd mission report) and after evaluating various offers for training, it was agreed that the best approach was to hire two independent local specialists: one to revise and digitize the available training manual and one to conduct the courses. A qualified trainer was already identified and the business development service provider partner was to be asked to assist with the logistic needs and organization.

Mr Nariman, one of the ten most experienced inseminators in Azerbaijan, in action.



The project can support the development of AI services in two ways: conduct the necessary training courses and support the development of a distribution system for semen and liquid nitrogen and/or limit support to information supply for farmers.

4 On-the-job Training

On-the-job training is an ongoing process and mainly takes place through close working relationships, joint field visits and shared information.

This time the on-the-job training had to make a fresh start as the project team for dairy changed and expanded. The new value chain expert, Mr. Elvin Agayev, joined the team at the start of the present mission, more or less at the same as the two local experts that are based in Lankaran and Agjabedi.



Mr. Elvin Agayev discussing forage quality during one of the workshops.

Strengthening the 'dairy team' makes it possible to move forward without having to wait for the service providers, but has the disadvantage that sustainability and continuity are less secure, although the local experts' capacity will have been increased through the implementation of the project. Once the project is finished, their services will end. This may or may not be the case with service providers where there is a better chance of continuation with some other funding source.

The new local experts showed strong motivation, and it was clear that the local communities and farmers respect both of them. Their technical know-how is as good as can be expected in a country where for many years it was difficult to obtain information on new technologies and modern farms are very scarce. During the field days, the project provided as much on-the-job training as possible, but this will not be enough to cover all their needs. The curriculum will allow a systematic continuation of training.

The workshops, as described earlier, proved to be a very effective way of training and identification of further training needs. The trainers did not have much time to go through the new training materials (and none of the trainers guides), so they provided a mix of the new information and their earlier teachings. Through the translators it was possible to detect specific points that we now consider as misconceptions or as less relevant for the farmers. These points need to be discussed further to ensure that the farmers receive the correct information. On the other hand we learned more about the farming systems and priorities of farmers.

The new extension specialist, Mr. Eric Imerman, participated in all the field travels and was given an opportunity to obtain first hand information on the recent developments in the dairy sector and earlier project activities on milk production and processing.

5 Next Steps and Recommendations

Dairy development is a process that takes time and a consistent approach. At the start of the project the main objectives of the USAID/ACT dairy component were:

- Enhancing the cooperation between key-players to become a reliable partner for the government on dairy development policy and to define common approaches towards the increased production and higher quality of raw milk, and
- Capacity building, mainly through the training of trainers (farm advisors and veterinarians, either working for a BDS or processing plant).

More recently emphasis has moved towards farmer training. The basic approach still requires BDS involvement, but is now complemented with two new local dairy experts.

The previous missions were the first steps on the planned road, and the roundtable meetings with key-players of the dairy industry gave better insight into the main challenges for dairy development. However, further feedback from and cooperation between these stakeholders was not enough to pursue this approach successfully. Cooperation on an individual basis with each of the dairy companies continues, as they still are the engine of dairy development.

One of the recently established dairy plants in Azerbaijan



Capacity building of farmers, through local trainers, has now become the focus area of technical support. Targets have been set for the number of farmers to be trained in topics related to dairy farm management, and during the present mission, the training materials and curricula were developed.

To ensure that not only the numbers are achieved, but also the quality of the technical contents meets the required standards, the training-of-trainers has to continue on a regular basis. The trainers still lack the fundamental knowledge on animal nutrition and modern farm management. They never had much chance to improve their skills, and there are few places in Azerbaijan where they can see examples of modern dairy farming. Before they can teach basic skills to farmers, they themselves must at least have enough understanding of the fundamentals of dairy farming.

Imported heifers kept at a local farm: the owner does not know how to manage these cows and the poor animals suffer in their new environment.



All problems farmers are facing are basic and well documented. There is more than enough information available on present constraints and possible solutions. Further studies would not add much to solve any of the present constraints. Training, information supply and improvement of services are areas that will be more beneficial. In addition small demonstration plots for fodder production and conservation could be established to support the workshops on animal nutrition. If the available budget for on-farm demonstration allows it, simple improvements in housing could also be supported (see the presentation on housing for possible low-cost improvements).

The dairy companies are all searching for a regular supply of good quality milk. In spring, when most cows give birth and fresh natural grass is available, there is a surplus of milk. In winter there is a severe shortage of milk and even with the much higher prices for raw milk during this period, the volume has hardly changed over the past few years. Most dairy companies now consider or are already developing large-scale dairy farms. This will not only give them control over a regular supply, but also makes it possible to obtain much better quality milk and produce higher quality dairy products.

The dairy companies will continue to collect milk from smallholders as a kind of social responsibility, but if these households do not make an effort to increase volume and quality they will never become attractive suppliers. Our training programs therefore should be aimed at those farmers that are willing to make changes and that wish to remain in the dairy business for years to come.

For these women milk sales are a bit of extra income and the dairy plants continue as a form of social responsibility.



The two objectives of the project-structural dairy development and practical assistance to farmers-are complimentary and still the most desired approach. This means involvement of all stakeholders, training-of trainers and through them training of farmers. A pragmatic and practical approach is the most effective way to reach these objectives.